

Publication Updates DFSMSHsm EXPIREBV Unix Directory Enhancement V2R3 and above	
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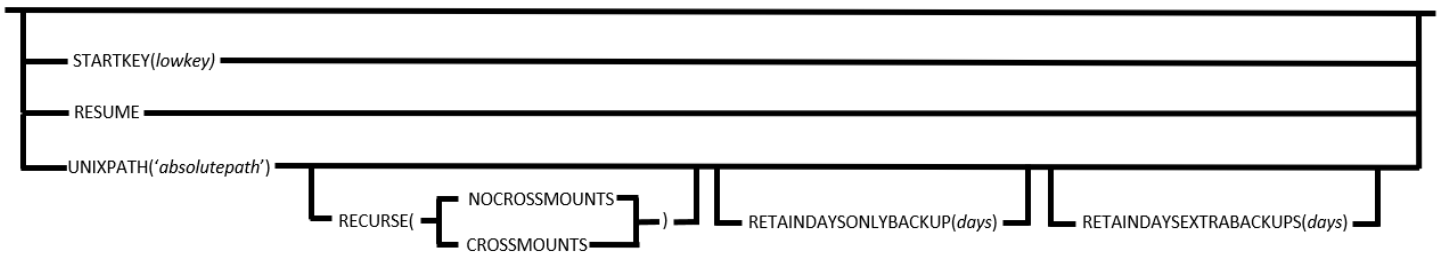
1 Publication Changes:

1.1 z/OS DFSMSHsm Storage Administration (SC23-6871-xx)

1.1.1 Chapter 41. EXPIREBV command: Deleting unwanted backup versions of data sets and UNIX files

1.1.1.1 Section - Syntax of the EXPIREBV command

The following train tracks diagram shall be modified to add in the UNIXPATH keyword along with its' optional trailing keywords as follows...



1.1.1.2 Section - Optional parameters of the EXPIREBV command

The following new sub section shall be added in its' correct corresponding location of its' containing parent section.

UNIXPATH: Specify the Unix file, empty directory, or non-empty directory to analyze for backup expiration.

Explanation

UNIXPATH is used to specify an absolute path (i.e. starting from the '/' [root] directory) to a UNIX file, empty directory, or non-empty directory to analyze for backup expiration. If a UNIX file or empty directory is specified, then only that is analyzed. If a non-empty UNIX directory is specified, then the directory node itself is checked (in the case it was backed up when it was an empty directory) and then all direct children.

UNIXPATH

Specify an absolute path (i.e. starting from the '/' [root] directory) to a UNIX file, empty directory, or non-empty directory to analyze for backup expiration.

absolute path

Absolute UNIX path starting from the root (i.e. '/') directory. The absolute path may contain one of the following...

- 1) Absolute UNIX path to a file (e.g. '/absolute/path/myfile.json')
- 2) Absolute UNIX path to an empty directory (e.g. '/absolute/path/emptydir/').
- 3) Absolute UNIX path to a non-empty directory (e.g. '/absolute/path/nonemptydir/')

Note that whenever a directory (whether empty or non-empty) is specified a trailing '/' must be included.

e.x.

`‘/absolute/path/mydir’ -> incorrect`

`“/absolute/path/mydir/” -> correct`

Defaults

None.

Usage Notes

- Specifying UNIXPATH alone does not cause DFSMSHsm to recurse into subdirectories unless the RECURSE option is explicitly specified also.
- The RESUME option, as it relates to the UNIXPATH(*‘absolute path’*) being the most recent EXPIREBV command run but was CANCELED for whatever reason, will be targeted as follows...
 - If UNIXPATH only was specified (i.e. without RECURSE) and at some point during processing it is CANCELED and later RESUME was specified (caveat is no other EXPIREBV commands are run in between that CANCELED instance and trying to RESUME), DFSMSHsm will continue as follows...
 - When a UNIX file was specified in this scenario, RESUME will cause DFSMSHsm to continue processing siblings within the same containing directory as the original UNIX file (DFSMSHsm will not recurse into subdirectories).
 - When an empty UNIX directory was specified in this scenario, RESUME will cause DFSMSHsm to continue processing siblings within the same containing directory as the original UNIX file (DFSMSHsm will not recurse into subdirectories).
 - When a non-empty UNIX directory was specified in this scenario, RESUME will cause DFSMSHsm to continue traversing the sibling linked list of the given directory from that last saved key in the BCR (Recall that EXPIREBV processing state is periodically saved in the BCR record). Not that this continuation in processing will only look at siblings that are UNIX files or empty UNIX directories, it will not recurse into subdirectories when they are found.
- Issuing the RESUME option after a successful completion of a EXPIREBV UNIXPATH (+- any other optional parameters) will cause EXPIREBV to begin from the first record in the BCDS, as is the case with other combinations that finish successfully and then are RESUMEd (e.g. STARTKEY). The important idea to note, is that DFSMSHsm will not continue processing from within the UNIX file tree if RESUME is issued after a successful EXPIREBV UNIXPATH run.

1.1.1.3 Section - Optional parameters of the EXPIREBV command

The following new sub section shall be added in its' correct corresponding location of its' containing parent section.

RECURSE: Optional keyword used in conjunction with UNIXPATH to recurse into subdirectories of the directory specified with UNIXPATH

Explanation

RECURSE is an optional keyword exclusive to UNIXPATH, that when used in conjunction with UNIXPATH will cause DFSMSHsm to recurse into subdirectories of the specified directory with UNIXPATH. This allows logically related subtrees within the file system to be checked together.

NOCROSSMOUNTS

Indicates that, during recursion into subdirectories of the containing parent directory, DFSMSHsm should *not* recurse into subdirectories belonging to a different mount than the containing parent.

CROSSMOUNTS

Indicates that, during recursion into subdirectories of the containing parent directory, DFSMSHsm should recurse into subdirectories belonging to a different mount than the containing parent.

Defaults

If nothing is specified with the RECURSE option then NOCROSSMOUNTS is assumed by default.

Usage Notes

- If the absolute path specified with UNIXPATH is to a file or empty directory, RECURSE is ignored.
- The RESUME option, as it relates to the UNIXPATH('absolute path') + RECURSE(CROSSMOUNTS | NOCROSSMOUNTS) being the most recent EXPIREBV command run but was CANCELED for whatever reason, will be targeted as follows...
 - If UNIXPATH('absolute path') + RECURSE(CROSSMOUNTS | NOCROSSMOUNTS) was specified, and at some point during processing it is CANCELED and later RESUME was specified, it will be considered an error and processing will stop with message ARC0685I being issued.

1.2 z/OS DFSMSHsm Data Areas (GC14-7504-xx)

1.2.1 Chapter 4. BCR—Backup Control Record

In *Table 7. BCR—Backup Control Record*, a new bit shall be added within the structure at offset 206(CE), directly after the bit described by *BCRFRVL1* as follows...

Offset:	Leave Blank
Type:	.1... ..
Length:	Leave Blank
Name:	BCREF_UNIXPATH
Description:	The most recent run of EXPIREBV specified the UNIXPATH keyword.

1.2.2 Chapter 4. BCR—Backup Control Record

In *Table 7. BCR—Backup Control Record*, a new bit shall be added within the structure at offset 206(CE), directly after the bit described by BCREF_UNIXPATH as follows...

Offset:	Leave Blank
Type:	..1.

Length: Leave Blank
 Name: BCREf_UNIXRECURSE
 Description: The most recent run of EXPIREBV specified the UNIXPATH keyword with RECURSE.

1.2.3 Chapter 4. BCR—Backup Control Record

In *Table 7. BCR—Backup Control Record*, a new bit shall be added within the structure at offset 206(CE), directly after the bit described by BCREf_UNIXRECURSE as follows...

Offset: Leave Blank
 Type: **...1**
 Length: Leave Blank
 Name: BCREf_UNIXRETAINDAYSONLY
 Description: The most recent run of EXPIREBV specified the UNIXPATH keyword with RETAINDAYSONLYBACKUP.

1.2.4 Chapter 4. BCR—Backup Control Record

In *Table 7. BCR—Backup Control Record*, a new bit shall be added within the structure at offset 206(CE), directly after the bit described by BCREf_UNIXRETAINDAYSONLY as follows...

Offset: Leave Blank
 Type: **...1**
 Length: Leave Blank
 Name: BCREf_UNIXRETAINDAYSEXTRA
 Description: The most recent run of EXPIREBV specified the UNIXPATH keyword with RETAINDAYSEXTRABACKUPS.

1.2.5 Chapter 4. BCR—Backup Control Record

In *Table 7. BCR—Backup Control Record*, a new two byte field shall replace the RESERVED field at offset 600(258) as follows...

Offset: 600(258)
 Type: FIXED
 Length: 2
 Name: BCREf_UNIXRETAINDAYSONLYBACKUP
 Description: The most recent run of EXPIREBV specified the UNIXPATH keyword with RETAINDAYSONLYBACKUP, and this holds the value specified on it. Only valid if BCREf_UNIXRETAINDAYSONLY is ON.

1.2.6 Chapter 4. BCR—Backup Control Record

In *Table 7. BCR—Backup Control Record*, a new two byte shall be added after BCREf_UNIXRETAINDAYSONLYBACKUP field at offset 600(258) as follows...

Offset: 602(25A)

Type: FIXED
 Length: 2
 Name: BCREF_UNIXRETAINDAYSEXTRABACKUPS
 Description: The most recent run of EXPIREBV specified the UNIXPATH keyword with RETAINDAYSEXTRABACKUPS, and this holds the value specified on it. Only valid if BCREF_UNIXRETAINDAYSEXTRA is ON.

1.2.7 Chapter 16. EGCB—Expire Backup Version Global Control Record

In *Table 7. BCR—Backup Control Record*, a new bit shall be added within the structure described by EGCBFLGS at offset 66(44), directly after the bit described by EGCF_RETCPY as follows...

Offset: Leave Blank
 Type:1
 Length: Leave Blank
 Name: EGCF_UNIXRETAINDAYONLY
 Description: The current running EXPIREBV command has specified the RETAINDAYONLYBACKUP option with the UNIXPATH keyword.

1.2.8 Chapter 16. EGCB—Expire Backup Version Global Control Record

In *Table 7. BCR—Backup Control Record*, a new bit shall be added within the structure described by EGCBFLGS at offset 66(44), directly after the bit described by EGCF_UNIXRETAINDAYONLY as follows...

Offset: Leave Blank
 Type: 1... ..
 Length: Leave Blank
 Name: EGCF_UNIXRETAINDAYSEXTRA
 Description: The current running EXPIREBV command has specified the RETAINDAYSEXTRABACKUPS option with the UNIXPATH keyword.

1.2.9 Chapter 16. EGCB—Expire Backup Version Global Control Record

In *Table 7. BCR—Backup Control Record*, a new two byte field shall replace the RESERVED field at offset 234(EA) as follows...

Offset: 234(EA)
 Type: FIXED
 Length: 2

Name: EGC_UNIXRETAINDAYSONLYBACKUP
Description: The current running EXPIREBV command has specified the RETAINDAYSONLYBACKUPS option with the UNIXPATH keyword, this field holds that value.

1.2.10 Chapter 16. EGCB—Expire Backup Version Global Control Record

In *Table 7. BCR—Backup Control Record*, a new two byte field shall replace the RESERVED field at offset 244(F4) as follows...

Offset: 244(F4)
Type: FIXED
Length: 2
Name: EGC_UNIXRETAINDAYSEXTRABACKUPS
Description: The current running EXPIREBV command has specified the RETAINDAYSEXTRABACKUPS option with the UNIXPATH keyword, this field holds that value.

1.3 z/OS MVS System Messages Vol 2 (ARC-ASA) – (SA38-0669-xx)

1.3.1 Chapter 1. ARC messages

1.3.1.1 ARC0685I

The following inserts shall be added to the end of the inserts list that follows keywords “**EXPIREBV COMMAND NOT PROCESSED – {...}**”.

1. “| ‘ENDKEY’ IS NOT ALLOWED WITH ‘UNIXPATH’, OR ‘RESUME’ WHEN IT PERTAINS TO A STOPPED OR CANCELLED ‘UNIXPATH’”
2. “| RESUME IS NOT ALLOWED IF AN ‘EXPIREBV UNIXPATH RECURSE’ WAS PREVIOUSLY INTERRUPTED”
3. ABARVERSIONS SPECIFIED WITH ‘UNIXPATH’, OR ‘RESUME’ OF A STOPPED OR CANCELLED ‘UNIXPATH’
4. NONSMSVERSIONS SPECIFIED WITH ‘UNIXPATH’, OR ‘RESUME’ OF A STOPPED OR CANCELLED ‘UNIXPATH’

The following two bullet points shall be added to the bulleted list under the heading “**Explanations**”.

- UNIXPATH is a mutually exclusive option that cannot be combined with other record directed options (e.g. STARTKEY, ENDKEY, ABARVERSIONS, NONSMSVERSIONS, etc...).
- If UNIXPATH + RECURSE was previously specified for an EXPIREBV process that was CANCELed before completion, it is an error to try to RESUME the process. Re-issue the EXPIREBV UNIXPATH + RECURSE command and allow it to run thru to completion.

1.3.1.2 ARC0682I

The following new insert shall be added to message **ARC0682I** after current insert “TOO MANY BCDS I/O ERRORS” and be as follows...

“UNRESOLVABLE ‘UNIXPATH’ ERROR”

Also, a new bullet point shall be added at the end of the bulleted list under paragraph **Explanation** as follows...

- The EXPIREBV command was issued with UNIXPATH, or is a RESUME of an immediately prior CANCELED UNIXPATH command, and has hit an unresolvable error while processing UNIX files and/or directories.

Lastly, a new paragraph shall be added to the end of the **Programmer Response** section as follows...

If EXPIREBV has encountered an “UNRESOLVABLE ‘UNIXPATH’ ERROR” contact IBM support for assistance.

1.3.1.3 ARC0138I

The ARC0138I message itself shall not be updated, however the ‘**Explanation**’, ‘**System Action**’, and ‘**Programmer Response**’ text will be updated to include that it may be printed for EXPIREBV UNIXPATH(*absolutepath*) in the case where *absolutepath* does not have a Unix File Node (UFN) in the BCDS.

The updates will be as follows...

Explanation

A LIST or HLIST command was issued to list the following:

- Backup control data set (BCDS) information about a data set, file, volume key, dump class, aggregate group or copy pool key.
- Migration control data set (MCDS) information about a data set or volume key.
- Information from both MCDS and BCDS about a data set or volume key.
- AGGREGATE GROUP key — The ABR record information was requested by the LIST command. key was the aggregate group name specified. * indicates that ABR record information was requested for all aggregate groups.
- VERSION(vvvv) — VERSION was specified on the LIST AGGREGATE command. ABR records for VERSION(vvvv) for the specified aggregate groups were to be listed.
- DATE(yyyy/mm/dd) — DATE was specified on the LIST AGGREGATE command. ABR records dated yyyy/mm/dd for the specified aggregate groups were to be listed.
- Cloud information about containers, prefixes, or objects.

An EXPIREBV UNIXPATH(*absolutepath*) was issued to expire backup versions of:

- FILE – a UNIX file or directory.
- *key* – the *absolutepath* given on the EXPIREBV command.

No information was found for the data set, UNIX file, volume, level, dump class, aggregate group, copy pool, container, or cloud object with the serial number or name of key.

The special case of “NO UNIQUE INFORMATION FOUND FOR OBJECT PREFIX ...”. This may be issued for a LIST CLOUD(*cloud_network_connection_name*) CONTAINER(*container_name*) PREFIX(*object_prefix*) command. When several pseudo-directories with that matching prefix are found in the cloud, DFSMSHsm cannot determine which pseudo-directory to list.

System action

LIST or HLIST processing ends. DFSMSHsm processing continues.

EXPIREBV UNIXPATH(*'absolute_path'*) processing ends. DFSMSHsm processing continues.

Programmer response

The command might have been issued with the wrong control data set specified or implied. Reissue the LIST or HLIST command with the correct parameters.

The command might have been issued with an incorrect/typo *'absolute_path'*. Check the passed in *'absolute_path'* for errors, if none then DFSMSHsm has no known backups of *'absolute_path'*.